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NRO REVIEW COMPLETED

MEMORANDUM FOR : Deputy Director (Science and Technology)
SUBJECT : Transmittal of OXCART Status Report

Attached is a current OXCART status report.

[REDACTED]

ILLEGIB

JACK C. LEDFORD
COLONEL, USAF
Assistant Director
(Special Activities)

Atts: As Stated

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Attachment I to

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OXCART STATUS REPORT

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1. Since the first flight of an OXCART A-12 aircraft, 26 April 1962, 374 flights, totaling 525:06 flight hours, have been made utilizing a total of seven aircraft at the test site [redacted] as listed on Attachment II. Of these totals, 99 flights totaling 111:24 hours were conducted with aircraft having two J-58 engines installed. The J-58 is the engine necessary for Mach number extension. The only aircraft not now using the J-58 engine is the dual-place trainer and it will eventually be retrofitted with J-58 engines. J-58 engine development status is shown on Attachment III.

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2. Six A-12 aircraft (accounting for the loss of #123) currently are in flight test. On 10 July 1963 the eighth aircraft was delivered [redacted] and on 29 August 1963 the ninth aircraft was delivered. Both of these aircraft are in varying stages of final assembly. Attachment IV contains an estimated delivery schedule for the remaining six A-12 aircraft under procurement.

3. To date the longest A-12 flight has been 3:06 hours, the highest speed achieved has been Mach 3.06, and the highest altitude has been 75,800 feet.

4. The aircraft, engines, and other critical components, including the inertial navigation system, stability augmentation system, autopilot, air induction system, pilot environment equipment, cameras [redacted] all specifically developed for the program, have performed reasonably well within the limits of testing so far in the flight test program. One of the most critical problems confronting the program is the occurrence of duct roughness which has been most severe in the Mach 2.4 - 2.9 region. Modifications have been made to a flight test aircraft which, in some instances, have reduced the severity of the roughness, but a complete identification of the source of the roughness is still not known and further tests and modifications are underway.

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5. Laboratory testing of the Inertial Navigation System (INS) was conducted during the period January 1961 - September 1961 and was demonstrating errors of less than 1 N.M./HR. After 5 hours of operation with fixes at 3 and 4.5 hours, the error was

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3 N.M. compared to the specification requirement of a 4.5 N.M. error. From March 1962 - May 1962, 12 flight tests were conducted with the INS installed in a U-2. Excessive errors were being obtained due to platform misorientation. Fixes were incorporated and 9 subsequent flights of an INS installed in a U-2 were conducted from October 1962 - December 1962 with excellent results. See Attachment V for representative INS flight test results during this period. Since November 1962 there have been approximately 70 INS flights in the A-12 with the INS performance steadily improving. Attachment V shows results obtained during August 1963. The INS is presently installed in 5 A-12's and two additional systems are ready for installation.

6. Foreign object damage which has resulted in 20 J-58 engine removals and extensive aircraft nacelle modification suspended all Mach number extension flights between 5 April and 17 May 1963. Corrective measures have been taken and no further removals have occurred.

7. One isolated instance of an engine bearing failure has occurred and corrective action has been taken such that no further similar failures have occurred. Also insufficient clearance between the compressor blades and the honeycomb shroud around the blades coupled with rapid aircraft decelerations has resulted in damage to several engines. Modifications to the engines are now underway to correct this defect.

8. Failure of one pair of [REDACTED] was experienced during flight No. 7 on aircraft No. 127 on 10 September 1963. Lockheed/[REDACTED] investigation of this failure is underway.

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9. Aircraft #123 crashed on 24 May 1963. After intensive investigation by an accident board, it was concluded that the accident resulted from icing in the pitot tube which gave erroneous instrument readings to the pilot and led to a series of events culminating in a crash. The pilot ejected successfully. A new model pitot tube will be installed to prevent a recurrence.

10. Flight testing of the A-12 is now being conducted to verify the radar cross-section. The goals and status of the

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